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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/660,917	09/13/2000	Matthias Wendt	PHD 99,182	7454

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EXAMINER

CATHEY, DAMIAN E

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 05/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/660,917

Applicant(s)

WENDT ET AL.

Examiner

Damian E. Cathey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 September 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Dielacher et al. U.S. Patent No. 5,789,959 (cited by applicants).

3. In reference to claim 1, Dielacher et al. disclose (Fig. 1) an S-bus transmission device for decoupling direct and alternating voltage signals at a terminal device comprising two lines, 1,2, and 3,4, formed in a way suitable for data transfer via the two lines 1,2, and 3,4, and suitable for coupling energy out from the two lines, 1,2 and 3,4, comprising a first primary coil, 5a, and a second primary coil, 6a, each with a first terminal coupled to first and second lines, 1,2 and 3,4, respectively, and the two second terminals of the first and second primary coils, 5a and 6a, are interconnected at a power supply point, 50, for coupling energy. Dielacher et al. further disclose that the two primary coils, 5a and 6a, and the secondary side of a core are magnetically coupled together (See Dielacher et al. Col. 1, line 32) wherein the two primary coils, 5a and 6a

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are formed in such a way that a current flowing through the power supply point is divided into two equally large currents flowing in the two lines, 1,2 and 3,4, of the network (See Dielacher et al. Col. 4, line 32).

4. In reference to claim 9, Dielacher et al. disclose (Fig. 1) a network user, 10 (See Dielacher Col. 3, line 48), with a network coupler (Fig. 1) comprising two lines, 1,2, and 3,4, formed in a way suitable for data transfer via the two lines 1,2, and 3,4, and suitable for coupling energy out from the two lines, 1,2 and 3,4, comprising a first primary coil, 5a, and a second primary coil, 6a, each with a first terminal coupled to first and second lines, 1,2 and 3,4, respectively, and the two second terminals of the first and second primary coils, 5a and 6a, are interconnected at a power supply point, 50, for coupling energy. Dielacher et al. further disclose that the two primary coils, 5a and 6a, and the secondary side of a core are magnetically coupled together (See Dielacher et al. Col. 1, line 32) wherein the two primary coils, 5a and 6a are formed in such a way that a current flowing through the power supply point is divided into two equally large currents flowing in the two lines, 1,2 and 3,4, of the network (See Dielacher et al. Col. 4, line 32) and characterized in that data transferred or received by the network user in the network are coupled into or out of the two lines, 1,2 and 3,4, of the network by means of the network coupler (Fig. 1) and the energy supply of the user is ensured by energy coupled out of the two lines, 1,2 and 3,4, by the coupler and is made available at a power supply point, 50.

5. Referring to claim 10, Dielacher et al. disclose that the device is used in digital telecommunications including telephony, which incorporates the use of actuators in telephone ringers.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claims 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dielacher et al. U.S. Patent No. 5,789,959 (cited by applicants) in view of Lerner U.S. Patent No. 4,028,559.

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16. In reference to claims 4 and 11, Dielacher et al. disclose one repeater, 5,6, each is provided on the network side by which useful signals are injected into leads 1,2 or decoupled from leads 3,4 in the interface adapter. Dielacher et al. further disclose the windings 5a and 6a on the terminal device side of the repeaters 5 and 6, but never disclose the material that the coils 5a and 6a are made of, the cross section or length of coils 5a and 6a, the number of turns of coils 5a and 6a, or the resistance and impedance characteristics of the first and second primary coils (See Dielacher et al. Fig. 1).

17. Claim 4 states that the two primary coils consist of the same material and have the same cross section, length, and number of turns, and claim 11 states that the first and second primary coil have identical resistance and impedance, which is not stated in Dielacher et al.

18. Larner discloses a repeater (Fig. 2) fed with a constant dc supply and provided with a transformer-coupled bipolar pulse generating output stage for use in digital data line transmission (See Larner Col. 1, line 67). Larner further discloses the device to comprise two primary coils a,b and b',c having three equal windings (the term equal being taken to mean equal number of turns, same material, cross section, and length, as well as resistance and impedance since nothing is disclosed by Larner to point out any differences in the three windings in the specification, and the drawings show no differences in the windings as well) and that transformers having equal windings are commonly employed to aid in the transmission of fast rising pulses.

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19. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have further modified the repeater of Dielacher et al. to comprise coils having equal windings as taught by Larner.

20. The above modification would have been obvious in view of implicit teachings of Larner that transformers having equal windings are commonly employed to aid in the transmission of fast rising pulses.

21. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dielacher et al U.S. Patent No. 5,789,959 (cited by applicants) in view of O'Brien U.S. Patent No. 4,058,742.

22. In reference to claim 5, Dielacher et al. disclose the windings 5a and 6a on the terminal device side of the repeaters 5 and 6, but is silent as to the number of turns of coils 5a and 6a (See Dielacher et al. Fig. 1).

23. Claim 5 states that the secondary coil has a higher number of turns than the primary coil, which is not stated in Dielacher et al.

24. O'Brien discloses (Fig. 1) a high power radio frequency pulse transmitter having a dc power supply source, 10, used to charge a capacitor, 11, in a tank circuit formed by the capacitor, 11, and primary winding, 12 (See O'Brien Fig. 1). The energy in the primary or tank circuit is transferred to and absorbed by the coupled secondary or antenna circuit. The secondary winding, 30, has many more turns than the primary winding (See O'Brien Col. 12, line 28-40). This is done so that the voltage ultimately reached by the radio frequency oscillations in the secondary or antenna circuit is much higher than that in the primary circuit, which is optimal to the design.

25. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have further modified the network coupler of Dielacher et al. to incorporate a secondary coil having more windings than the primary coil.

26. The above modification would have been obvious in view of explicit teachings that by designing a transformer to have more windings on the secondary side than on the primary side, allows energy to be absorbed and transferred from the primary side to the secondary side making the voltage on the secondary side higher than the voltage on the primary side for the purpose of optimizing design as taught by O'Brien.

27. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dielacher et al U.S. Patent No. 5,789,959 (cited by applicants) in view of Miller U.S. Patent No. 4,454,430.

28. In reference to claim 6, Dielacher et al. disclose the windings 5a and 6a on the terminal device side of the repeaters 5 and 6, but is silent as to the number of turns of the primary coils, 5a and 6a (See Dielacher et al. Fig. 1).

29. Claim 6 states that the primary coils have a number of turns $n = 1$, which is not stated by Dielacher et al.

30. Miller et al. Disclose a device (Fig. 1) having special transformers, 11 and 12, having only one turn (See Miller Col. 2, line 56). Low turns are implemented in order to provide a fast delay and rise time with a high isolation voltage. When the number of turns is kept low, this means low volt-second capability, which makes the transformer

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adequate for short pulse widths, and inadequate for long pulse widths. (See Miller Col. 2, lines 36-48).

31. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have designed the network coupler of Dielacher et al. to incorporate primary coils with a number of turns $n = 1$.

32. The above modification would have been obvious in view of explicit teachings that low turns are implemented in order to provide a fast delay and rise time with a high isolation voltage, and when the number of turns is kept low, this means low volt-second capability which makes the transformer adequate for short pulse widths, as taught by Miller.

33. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dielacher et al U.S. Patent No. 5,789,959 (cited by applicants) in view of Spree U.S. Patent No. 5,168,440.

34. Dielacher et al. discloses the S-bus transmission device with a generic transformer above but does not disclose that the primary coils of the transformer are formed as metal strips.

35. Claim 7 states that the primary coils are formed as metal strips led cross-wise through the core.

36. Spreen discloses a transformer (Fig. 2) wherein the primary coils (145) are formed as metal strips, which are led cross-wise through the core. (Although Spree defines windings 145 as the secondary, the examiner takes the position that the terms "primary" and "secondary", used within the context of windings in any transformer

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would be arbitrary and interchangeable since the transformer may function with either winding selected as the primary or secondary winding to optimize design).

37. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted the generic transformer of the S-bus transmission device taught by Dielacher et al. with the transformer taught by Spreen. Such a modification would have realized the advantageous benefit of allowing for the alleviation of connector congestion and provides for better cooling (See Spreen – abstract) thus suggesting the obviousness of the modification.

38. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dielacher et al U.S. Patent No. 5,789,959 (cited by applicant) in view of Molthen U.S. Patent No. 4,080,585.

39. Referring to claim 8, Dielacher et al. disclose the windings 5a and 6a on the terminal device side of the repeaters 5 and 6, but is silent as to the material that the coils 5a and 6a are made of. (See Dielacher et al. Fig. 1).

40. Claim 8 states that a printed circuit board having a two-layer plate is provided on which both of the two primary coils and the secondary coil are printed as conductor tracks, which is not stated in Dielacher et al.

41. Molthen discloses (Figs. 1A and 1B) a flat coil transformer for electronic circuit boards having printed circuit board, 40, and flat surfaces, 41 and 42, on opposite sides of the board, and a first and second series of holes, 43,44 and 45,46, respectively, extending along the board surfaces, 41 and 42 and extending through the board. Molthen further discloses that on the first and second surfaces, 41 and 42, of the board,

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are electrically conductive straps, 47, 48, 49, and 50, extending between the first series of holes, 43,44, and the second series of holes 45,46. Molthen further disclose that the primary windings consist of a first helical conductive pattern formed by the straps on one surface, and the secondary windings consist of a second helical pattern formed by the remaining series of straps. This is done in the cases when circuits are embodied on printed circuit boards for the function of coupling energy or for suppressing unwanted signal components because conventional transformers are bulky and are not readily fitted on compact printed circuit boards (See Molthen Col. 1, lines 13-17).

42. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to have substituted the generic coils of Dielacher et al. with the flat coil transformer of Molthen.

43. The above substitution would have been obvious because it would have been considered both a substitution art recognized equivalence in view of recognition that the coils, 5a and 6a, of Dielacher et al. (See Dielacher et al. Fig. 1) and the flat coil transformer of Molthen (See Molthen Figs. 1A and 1B) function equivalently and are thus interchangeable and that an advantageous means of suppressing unwanted signal components and meeting size constraints is provided by such a modification, thereby suggesting the obviousness of the modification.

Response to Arguments

Applicant's arguments filed October 31, 2001 have been fully considered but they are not persuasive. The applicant argues that the two primary coils are formed in such a way that currents flowing through the two lines are equal to each other. In response, the circuit of Dielacher et al. serves to symmetrically, or differentially couple data from two lines. The coils of Dielacher et al. are formed in some manner, as well, but Dielacher et al. are silent as to how they are formed. Although Dielacher et al. are not specific as to how the coils are formed, they are formed in some manner, and the manner in which they are formed serves to provide the claimed function of dividing the current flowing through a power supply point into two equal currents.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the


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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Damian E. Cathey whose telephone number is 703-308-4909. The examiner can normally be reached on 7:00 - 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Pascal can be reached on 703-308-4909. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-0142 for regular communications and 703-305-0142 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


Justin P. Bettendorf
Primary Examiner
Art Unit 2817

dc
May 9, 2002